

Claims

1. Storage medium for the storage of information and data, characterized in that the storage medium comprises a dielectric, notably disk-shaped, storage material (1) upon which is or may be arranged on at least one side a donor medium for metallic ions, whereby by irradiation of the storage medium, in particular with a laser beam (6), metallic ions may be transferred from the donor medium into the storage material (1).
2. Storage medium for the storage of information and data, in particular according to claim 1, characterized in that the storage medium comprises a dielectric, notably disk-shaped, storage material (1), featuring at least a local metallic ion doping, whereby by irradiation, in particular with a laser beam (6), the metallic ions may be converted into metallic particles and/or aggregations of metallic particles.
3. Storage medium according to claim 1 or 2, characterized in that the storage material (1) is glass.
4. Storage medium according to one of the foregoing claims, characterized in that the metallic ion doping is arranged on at least one side near the surface in the storage material (1).
5. Storage medium according to one of the foregoing claims, characterized in that the metallic doping is executed with ions of silver and/or gold, and/or platinum, and/or copper.
6. Storage medium according to one of the foregoing claims, characterized in that a layer of material (3), particularly polymer, is arranged upon at least one side of the storage material (1).

7. Storage medium according to one of the foregoing claims, characterized in that the material layer (3) features an optically functional structure (4) forming in particular information for the guidance of a read/write beam (6).
8. Storage medium according to one of the foregoing claims, characterized in that it features at least two interconnected disks (1,2) of which at least one comprises a storage material (1) and another forms a layer of material (3).
9. Storage medium according to one of the foregoing claims, characterized in that a metallic ion doping in the proximity of the surface is arranged on the side of the storage material (1) facing the material layer (3).
10. Storage medium according to one of the foregoing claims, characterized in that the functional structure (4) in the material layer (3) is arranged on the side facing the storage material (1).
11. Storage medium according to one of the foregoing claims, characterized in that it features a reflective coating (5), arranged in particular on the material layer (3), preferably between the material layer (3) and the storage material (1).
12. Storage medium according to one of the foregoing claims, characterized in that the stored information or data consist of a spatial arrangement of storage material regions with and without metallic particles/metallic ions.
13. Process for the storage and/or read-out of data with a storage medium, notably according to one of the foregoing claims, characterized in that by means of irradiation of the storage medium/material by electromagnetic and/or particle irradiation, particularly by means of a laser beam (6), doping of the storage medium/material (1) is carried out with metallic ions from a donor medium arranged on the storage medium/material (1).

14. Process for the storage and/or read-out of data with a storage medium, notably according to one of the foregoing claims, characterized in that by irradiation of the storage medium/material (1) by electromagnetic and/or particle irradiation, especially by means of a laser beam (6) in a dielectric storage material (1) doped at least locally with metallic ions, information is stored in storage material (1) by local formation of metallic particles out of metallic ions, and/or the stored information is read out by scanning the storage material (1) with the said irradiation in transmission and/or reflexion.
15. Process according to one of the foregoing claims, characterized in that reading and writing of the information with a laser beam (6) takes place in the visible spectral region, notably in the blue wave length region.
16. Process according to one of the foregoing claims, characterized in that the formation of metallic particles and/or metallic particle aggregations takes place in the first step of irradiation by thermally induced formation of metallic particle nuclei by the reduction of metallic ions, and in a second step, growth of metallic particle nuclei into a metallic particle aggregation occurs by resonance-enhanced absorption of radiation, notably by reason of surface plasmon resonance.
17. Process according to one of the foregoing claims, characterized in that the deletion of stored information and data takes place by heating the storage medium (1).

Figure 1. 1. Sensitive glass
 3. Polymer disk